



Health Advisory for Fish and Shellfish from Clear Lake, Cache Creek, and Bear Creek (Lake, Yolo, and Colusa Counties)

a fact sheet by the
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

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Why has OEHHA developed a new health advisory for fish from the Clear Lake and Cache Creek watersheds?

A fish consumption advisory was issued for Clear Lake in 1987. Since that time, many more samples of fish have been collected as part of studies on mercury contamination in the Clear Lake and Cache Creek watersheds. The Office of Environmental Health Hazard Assessment (OEHHA) used the information from these studies to update the advisory for Clear Lake and develop new consumption guidelines that reflect current scientific information on mercury. Also, fish were tested for mercury from nearby Cache Creek and Bear Creek. OEHHA used these results to develop guidelines for sport fish consumption from these water bodies as well.

One set of guidelines applies to women of childbearing age and children age 17 years and younger, who are particularly sensitive to methylmercury (the most prevalent form of mercury in fish). A second set applies to women beyond their childbearing years and men.

Why is mercury found in fish from this region?

Mercury contamination in fish is a global problem. Emissions from volcanoes and coal-burning power plants release mercury into the air, where it can be carried worldwide before being deposited into oceans, lakes and reservoirs. In northern California, however, the presence of mercury in fish is largely a legacy of mining. The Clear Lake area is rich in mineral deposits, including cinnabar. Prospecting for mercury and other ores has been an important activity in the area since the mid-1800s. Mercury from natural weathering and mercury-containing waste from the mines can contaminate nearby water bodies. Also, geothermal springs venting directly into Clear Lake or draining into Cache Creek and Bear Creek can carry mercury. Once mercury accumulates in bottom sediments, bacteria convert the inorganic form of mercury into a more toxic, organic form known as methylmercury, which fish take in from their diet. Methylmercury can build up in fish to concentrations many thousands of times greater than mercury levels in the surrounding water. Because methylmercury accumulates in fish slowly over time, larger fish of a species usually have higher concentrations of methylmercury than smaller fish from the same water body. Predators of large fish, such as bass, tend to have higher levels of methylmercury than other fish, such as trout.

Because methylmercury affects the developing nervous system, women of childbearing age and children age 17 years and younger should carefully follow guidelines for eating these fish.

What are the human health effects of methylmercury found in these fish?

Developing fetuses and children are especially sensitive to methylmercury. Pregnant women and nursing mothers can pass methylmercury to their fetuses or infants through the placenta and through breast milk. Excess exposure to methylmercury can cause harm to the nervous system in children, leading to subtle decreases in learning ability, language skills, attention, and memory. These effects may occur through adolescence as the nervous system continues to develop. For this reason, a more conservative set of guidelines applies to women of childbearing age and children up to and including age 17.

In adults, the most subtle symptoms of methylmercury toxicity are numbness and tingling sensations in the hands and feet or around the mouth. Other symptoms at higher levels of exposure could include loss of coordination and vision problems.

The levels of methylmercury found in fish from these lakes and rivers should not result in the health effects described above if the proposed guidelines are followed.

Would it be better if I stop eating all fish from this region?

No. Fish are a nutritious part of your diet when eaten in moderate amounts. By following OEHHA's guidelines for eating fish from this region, you can reduce your risk of health effects from exposure to methylmercury. This fact sheet provides proposed guidelines to help you determine how much fish you should eat.

In addition, because almost all ocean and freshwater fish contain some level of methylmercury, you should consider your total fish consumption when making choices about how much fish to eat. OEHHA recommends that women of childbearing age and children aged 17 years and younger do not eat shark, swordfish, king mackerel, or tilefish. This advice is consistent with recent national advice. In addition, women of childbearing age and children can safely eat up to two meals a week of a variety of commercial fish, but only if they do not eat sport fish from local water bodies in the same time period. If you also eat fish caught from other water bodies in California, check whether OEHHA has issued an advisory for that location. If there is no advisory for a specific water body, women of childbearing age and children should limit their consumption of sport fish from that water body to one meal a week.

Where can I get more information?

Office of Environmental Health Hazard Assessment (OEHHA)

1515 Clay Street, 16th Floor

Oakland, California 94612

Telephone (510) 622-3170 FAX (510) 622-3218

Or visit the OEHHA Web site at: <http://www.oehha.ca.gov> (Click on "Fish")

For information on mercury in commercial fish, contact:

U.S. Food and Drug Administration

Center for Food Safety and Applied Nutrition

1 (888) SAFEFOOD or <http://www.cfsan.fda.gov/~dms/admehg3.html>

HEALTH ADVISORY

Fish are nutritious and should be part of a healthy, balanced diet. As with many other kinds of food, however, it is prudent to consume fish in moderation, particularly when chemical contaminants such as methylmercury are present in fish at concentrations that pose a concern for public health. OEHHA provides the following consumption advice to the public so that people can continue to eat fish from these locations without putting their health at risk.

FISH AND SHELLFISH CONSUMPTION GUIDELINES FOR CLEAR LAKE AND CACHE CREEK	
Women of childbearing age and children 17 years and younger may eat:	
Once a month	Largemouth bass, smallmouth bass, channel catfish, white catfish, brown bullhead, green sunfish, black crappie, white crappie, Sacramento blackfish, Sacramento pikeminnow, hardhead, or Sacramento sucker OR:
Once a week	Bluegill, hitch, carp, trout, or crayfish
Women beyond childbearing age and men may eat:	
Once a week	Largemouth bass, smallmouth bass, channel catfish, white catfish, brown bullhead, green sunfish, black crappie, white crappie, Sacramento blackfish, Sacramento pikeminnow, hardhead, or Sacramento sucker OR:
3 times a week	Bluegill, hitch, carp, trout, or crayfish
FISH AND SHELLFISH CONSUMPTION GUIDELINES FOR BEAR CREEK	
DO NOT EAT	No one should eat any fish or shellfish from Bear Creek
<p>MANY OTHER WATER BODIES ARE KNOWN OR SUSPECTED TO HAVE ELEVATED MERCURY LEVELS. If guidelines are not already in place for the water body where you fish, women of childbearing age and children 17 and younger should eat no more than one sport fish meal per week, and women beyond childbearing age and men should eat no more than three sport fish meals per week from any location.</p> <p>EAT SMALLER FISH OF LEGAL SIZE. Fish accumulate mercury as they grow.</p> <p>DO NOT COMBINE FISH CONSUMPTION ADVICE. If you eat multiple species or catch fish from more than one area, the recommended guidelines for different species and locations should not be combined. For example, if you eat a meal of fish from the one meal per month category, you should not eat another fish species containing mercury for at least one month.</p> <p>SERVE SMALLER MEALS TO CHILDREN. Meal size is assumed to be 8 ounces for a 160-pound adult. If you weigh more or less than 160 pounds, add or subtract one ounce to your meal size, respectively, for each 20-pound difference in body weight.</p> <p>CONSIDER YOUR TOTAL FISH CONSUMPTION. Fish from many sources (including stores and restaurants) can contain elevated levels of mercury and other contaminants. IF YOU EAT FISH WITH LOWER CONTAMINANT LEVELS (INCLUDING COMMERCIAL FISH) YOU CAN SAFELY EAT MORE FISH. The American Heart Association recommends that healthy adults eat at least two servings of fish per week. Shrimp, king crab, scallops, farmed catfish, wild salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury.</p>	